

Contributed by:

Scotty Berg

Region:

Alaska North/Central

Office:

NWS WFO Anchorage, AK (AFG)

Date:

13 October 2015

Product(s):

Nighttime Microphysics RGB

Application Area:

Aviation

Public Event Decision Support

Feature:

Low status and fog impact to TAFs

Instrument(s):

ABI, MODIS, VIIRS, AVHRR

Works well with:

11-3.9 μ Difference

Vis./Ceiling observations

Related Links:

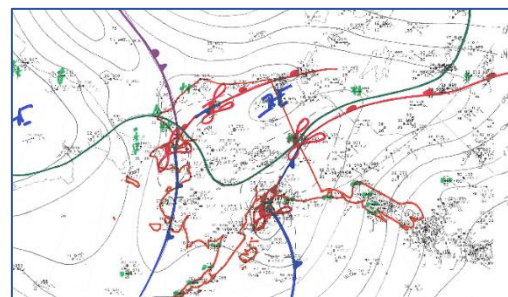
[NtMicro RGB Quick Guide](#)
(SPoRT)

[Multispectral Imagery: RGBs Explained](#) (UCAR/COMET)

[Aviation Forecasting RGB Products: Alaska](#) (SPoRT)

Event Description:

Weather front over the arctic and west coast will be moving to the northeast into the arctic. A low pressure system in Prince William Sound is spreading precipitation over the southeast interior with stratus spreading west to Tanana and north to the upper Yukon flats. See analysis.



Product Impact: Fog and stratus over the areas will impact several aviation sites as well as the public forecast areas. TAF ceiling forecasts at Barrow, Nuiqsut, Deadhorse, Tanana, (Fig. 1) and Fairbanks (Fig. 2) were influenced by the presence of stratus as analyzed through use of the NtMicro RGB. Decided to keep the lower ceilings over these sites since several NtMicro RGB images indicated that the stratus was not moving. This was counter to what the model guidance was indicating.

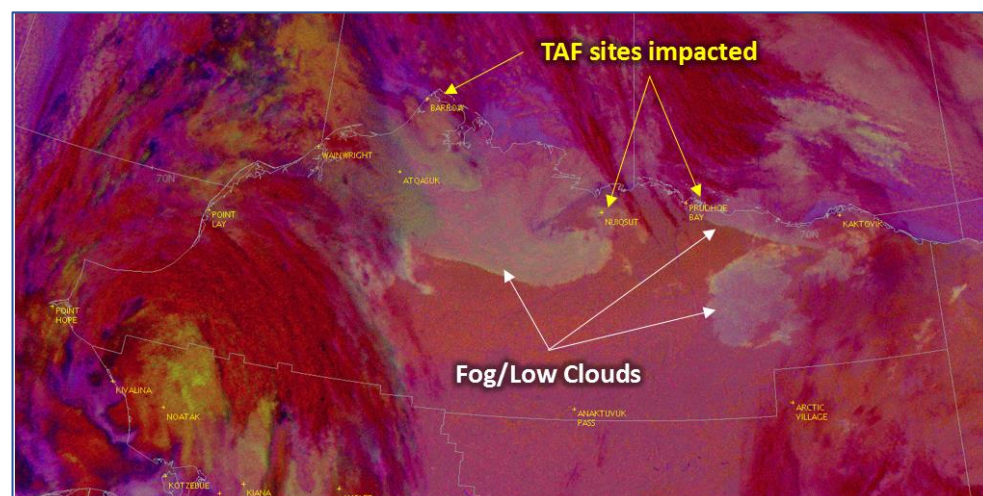


Figure 1. Nighttime Microphysics RGB valid at 0629 UTC, 13 October 2015 over north Alaska area with TAF sites (yellow) along the Arctic coast.

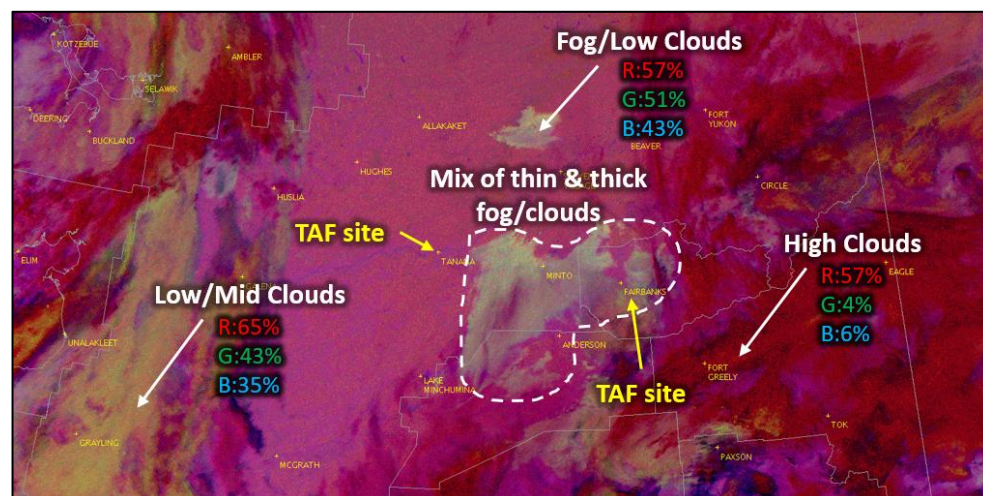


Figure 2. Same as Figure 1 except over central Alaska and Fairbanks area. Red, Green, and Blue percentage values of RGB provided for low, mid, and high clouds.

Interpretation: In the arctic coast region (Fig. 1), the brightness temperature of the thermal channel (~11 micron, blue component) is nearly equal for the low clouds and the land surface, but the difference between it and the shortwave IR (i.e. ~11-3.9 micron, green component) highlights the fog and low clouds by adding a green color contribution to those objects. The resulting color is nearly gray for much of the fog and low clouds; however, a greenish to light brownish tint also occurs in areas where it is relatively cold (i.e. less blue). A similar interpretation occurs for the clouds in the Fairbanks region (Fig. 2), but the clouds are slightly brighter overall due to being warmer (i.e. more blue) and having more small water particles (i.e. more green) than in the arctic region.

Note: Thin or sparse fog will allow some emissions from the surface to mix with those from the clouds, and the resulting color may be similar to the cloud-free earth surface. This can give a false sense of being able to “see through the clouds”, but recall that no visible channels are used in the RGB.